Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Cabot Corporation
Ville Platte Plant
Ville Platte, Evangeline Parish, Louisiana
Agency Interest Number: 1291
Activity Number: PER20040002 & PER20040003
Proposed Permit Number: 0920-00001-V1

I. APPLICANT

Company:
Cabot Corporation
2066 Cabot Rd
Ville Platte, Louisiana 70586

Facility:
Ville Platte Plant
2066 Cabot Rd
Ville Platte, Evangeline Parish, Louisiana
Approximate UTM coordinates are 571.816 kilometers East and 3401.798 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

The Cabot Corporation - Ville Platte Plant is an existing carbon black facility. The plant uses a modular process to convert carbonaceous feedstock into various grades of carbon black. Different grades of carbon black are produced by adjusting rates, introduction methods and locations of reactants and additives, temperatures, geometry, fuel/feedstock composition, additives, reaction volume, residence times, and equipment components.

The Ville Platte Plant currently operates under Permit No. 0920-00001-V0 and PSD-LA-587(M-1), both issued November 4, 1999.

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application and Emission Inventory Questionnaire were submitted by Cabot Corporation on April 29, 2004 requesting a Part 70 operating permit renewal and modification. A corrected application dated August 19, 2004, and additional information dated April 26, 2007 and May 21, 2007 were also received.

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Project

Originally, Cabot proposed the following modifications, which were approved in Title V Permit 0920-00001-V0 and PSD Permit PSD-LA-587(M-1), both issued on November 4, 1999:

Unit	1999 Modifications
1	- Improve product recovery by replacing dryer purge gas scrubber with filter - Interconnect with Units 1 and 4
2	- Improve product recovery by replacing dryer purge gas scrubber with filter - Interconnect with Units 1 and 4 - Add 2nd reactor (from Unit 3) - Improve product recovery in process filter
3	- Improve product recovery by replacing dryer purge gas scrubber with filter - Move reactor to Unit 2 - Add 3 new reactors - Improve product recovery in process filter
4	- Interconnect with Units 1 and 2
5	- Add 2 reactors - Add main unit filter - Add process filter - Add 2 dryers - Add flare - Add support systems (e.g., purge gas filter, transfer, etc.)
Product Handling	- Add 5 new tanks - Add grinding station and tank - Improve product recovery in packaging warehouse
Site	- Achieve total site production of 700 million pounds per year

Following issuance of the permits, Cabot was in a program of construction. During the construction process, changing market conditions resulted in a reassessment of the planned modifications. In lieu of adding more major equipment at the site, Cabot believed that it would be more effective to replace and/or upgrade existing pieces of equipment. By letter dated September 20, 2004, the Department made no objection to the design changes listed below.

Unit	2003 Actual Design Changes
1	Improved product recovery by replacing dryer purge gas scrubber with filter, while replacing main Unit filter structure due to intricacy with purge gas filter upgrade
	Interconnected with Units 2 and 4 while venting new dryer purge gas filter to interconnected dryer stack

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Unit	2003 Actual Design Changes
1	In lieu of adding new Unit 5 reactor, heat exchanger, dryer, etc., adjusted Unit 1 reactor, replaced Unit 1 heat exchanger, and debottlenecked Unit 1 dryer
2	Improved product recovery by replacing dryer purge gas scrubber with filter, while replacing main Unit filter structure due to intricacy with purge gas filter upgrade
	Interconnected with Units 1 and 4 while venting new dryer purge gas filter to interconnected dryer stack
	In lieu of additional reactor and process filter changes, replaced heat exchanger and dryer
3	Improved product recovery by replacing dryer purge gas scrubber with filter, while replacing main Unit filter structure due to intricacy with purge gas filter upgrade
	In lieu of additional two reactors and process filter changes, adjusted reactor and replaced heat exchanger and dryer
4	Interconnected with Units 1 and 2
	In lieu of adding new Unit 5 second dryer, repaired and de-bottlenecked dryer
5	As indicated above, in lieu of adding equipment as a new Unit 5, adjusted Unit 1 reactor, replaced Unit 1 heat exchanger, and de-bottlenecked Unit 1 and 4 dryers
Product Handling	Added dust controls in lieu of packaging warehouse modifications, additional tanks, and grinding station
Site	Reduced 1999 permitted production of 700 million pounds per year to 455 million pounds per year

In this permit renewal, the following changes will be made at the Ville Platte Plant:

- Upgrading of all process filter bags (EPNs 25, 66-93, 32-95, and 69),
- Elimination of the main unit heat load vent in Unit 3 (EPN 7) and venting through the unit's flare (EPN 7-96),
- Removal of the spare feedstock heater (EPN 38) from service,
- Removal of the Spencer vacuum system bag filter at the North Warehouse (EPN 50) from service,
- Removal of the Process Boiler (EPN 74) from service,
- Removal of the Waste Carbon Black Incinerator (EPN 40) from service,
- Removal of three planned warm-up vents (EPNs 64B-2B, 64C-3B, and 64C-3C) from service, and
- Installation of equipment associated with a conversion of the VP-1 Unit.

Cabot also proposes to accept a process vent emissions cap. This will limit emissions from site-wide process vents that are production related and allow operational flexibility in varying the production of grades of carbon black at all units.

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Proposed Permit

Permit 0920-00001-V1 will be the renewal and modification of Part 70 operating permit 0920-00001-V0 for the Ville Platte Plant.

Permit PSD-LA-587(M-2) will modify the facility's current PSD permit, PSD-LA-587(M-1).

Permitted Air Emissions

Estimated emissions, in tons per year, from the Ville Platte Plant are as follows:

Pollutant	Before*	After	Change
PM_{10}	506.50	292.81	- 213.69
SO_2	35,762.70	24,549.97	- 11,212.73
NO_X	2,261.00	1,552.42	- 708.58
CO	14,616.60	10,163.80	- 4,452.80
VOC	538.00	374.11	-163.89

VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAP)			
Pollutant	**Before***	**After**	**Change**
Carbon disulfide	236.70	164.10	- 72.60
Carbonyl sulfide	67.50	46.82	- 20.68
Total	**304.20**	**210.92**	**- 93.28**
Non-VOC TAP			
Ammonia	0.70	0.49	- 0.21
Hydrogen cyanide	44.80	31.09	- 13.71
Hydrogen sulfide	353.50	245.60	- 107.90
Total	**399.00**	**277.18**	**- 121.82**

Other VOC Total	**233.80**	**163.19**	**-70.61**

* Emission estimates include those from the Unit 5 project. The unit was never constructed.

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IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
UNF 01 - Facility Wide	Chemical Accident Prevention Provisions [40 CFR 68]	DOES NOT APPLY. The facility does not store chemicals above the threshold quantity listed in 40 CFR 68.130. Cabot shall comply with the provisions of 40 CFR 68 if they become applicable.
	Chemical Accident Prevention and Minimization of Consequences [LAC 33:III.Chapter 59]	DOES NOT APPLY. The facility does not store chemicals above the threshold quantity listed in 40 CFR 68.130, Table 59.0, or Table 59.1 of LAC 33:III.5913. Cabot shall comply with the provisions of LAC 33:III.Chapter 59 if they become applicable.
EQT 3,8,11, & 26-29	Emission Standards for Sulfur Dioxide [LAC 33:III.1502.A.3]	DOES NOT APPLY. Units emit less than 5 tons per year of SO_2.
EQT 5,7,30,&32	Emission Standards for Sulfur Dioxide Continuous Emissions Monitoring [LAC 33:III.1511.A] Emission Standards for Sulfur Dioxide Recordkeeping and Reporting [LAC 33:III.1513]	EXEMPT. Units emit less than 250 tons of SO_2 per year. Record and retain at the site for at least 2 years the data required to demonstrate compliance with or exemption from SO_2 standards of Chapter 15. Compliance data shall be reported annually in accordance with LAC 33:III.918.
EQT 23-25	Control of Emissions of Organic Compounds [LAC 33:III.2103.B]	DOES NOT APPLY. Contents of the tanks have a maximum true vapor pressure that is less than 1.5 psia.

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ID No:	Requirement	Notes
EQT 23-25 (cont)	NSPS Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984. [40 CFR 60.110b]	DOES NOT APPLY. Capacity $\leq 151 m^3$ and vapor pressure < 3.5 kpa.
EQT 39	NSPS Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984. [40 CFR 60.110b]	DOES NOT APPLY. The tank capacity is less than $75 m^3$.

Cabot submitted the required notice of compliance under Subpart SS for 1-96 Units 1&2 Flare (EQT 04), 67 Unit 4 Flare (EQT 31), and 7-96 Unit 3 Flare (EQT 33) per 40 CFR 63.999(b).

Prevention of Significant Deterioration/Nonattainment Review

Cabot received the authorization to replace and de-bottleneck existing equipment as described in Section III. The proposed PSD modification, PSD-LA-587 (M-2), incorporates the changes associated with the approved replacement and de-bottlenecking of equipment. The modification also includes other minor facility changes.

BACT for SO_2 was determined to be a federally enforceable 4wt% limit (annual average) on the sulfur content of feedstock used at the Ville Platte plant. For NO_x, BACT was determined to be proper combustion practice (use of Cabot's proprietary flare) for tail gas combustion and no controls for the tail gas fired dryers.

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MACT Requirements

This facility is a major s ource of toxic air pollutants (TAP) pursuant to LAC 33:III.Chapter 51. The Ville Platte Plant emits Class II and Class III TAP that are above the minimum emission rate (MER). All sources which emit Class I or II TAP for which the MER has been met or exceeded on a facility-wide basis must meet Maximum Achievable Control Technology (MACT) standards according to LAC 33:III.5109.A. MACT for these sources is described in the applicable NESHAP standards listed in Section XI. Table 1 and the specific requirements of the proposed permit.

Air Quality Analysis

Cabot Corporation modeled emissions for Permit No. 0920-00001-V0 and PSD-LA-587(M-1), issued November 4, 1999. The results of that modeling are shown below. Because of the overall decrease in emissions from the facility, LDEQ did not require new modeling for this modification.

Dispersion Model(s) Used: ISCT3

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})
SO_2	3-hour	513.4 $\mu g/m^3$	(1300 $\mu g/m^3$)
	24-hour	202.1 $\mu g/m^3$	(365 $\mu g/m^3$)
	Annual	22.1 $\mu g/m^3$	(80 $\mu g/m^3$)
PM_{10}	24-hour	101.9 $\mu g/m^3$	(150 $\mu g/m^3$)
	Annual	30.5 $\mu g/m^3$	(50 $\mu g/m^3$)
NO_x	Annual	0.63 $\mu g/m^3$	(100 $\mu g/m^3$)

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

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Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

Per 40 CFR 70.6(f) and LAC 33:III.507.I, permit shields have been proposed as delineated in the following table:

Emission Source(s)	Proposes to be Shielded From...	...by Compliance with...	Was the Permit Shield Granted?
FUG 01	LAC 33:III.1305	LAC 33:III.501.B.1	No
EQTs 01,14,31,33, &38	LAC 33:III.1311.C	LAC 33:III.1105	No
	LAC 33:III.1503.C	MACT Standards	No

A permit shield to confirm that carbon black process heaters and boilers are affected sources as defined under 40 CFR 63 NESHAP Subpart YY and are excluded from 40 CFR 63 NESHAP Subpart DDDDD has been determined to be unnecessary as Subpart DDDDD was vacated.

VI. PERIODIC MONITORING

Unit	Applicable Regulation (s)	Monitoring Requirement
EQT 0004 1-96 – Units 1&2 Flare (Combined Stack)	40 CFR 63.11(b)(5) 40 CFR 63.987(c).	Monitoring of the flare pilot flame's presence using a thermocouple or equivalent device continuously.
EQT 0006 26-90 – North Side Vacuum Sys. Bag Filter	40 CFR 64.6(c)(1)	Opacity (surrogate for Particulate matter (10 microns or less)) monitored by visual inspection daily.

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Unit	Applicable Regulation (s)	Monitoring Requirement
EQT 0012 56 – South Side Vacuum Sys. Bag Filter	40 CFR 64.6(c)(1)	Opacity (surrogate for Particulate matter (10 microns or less)) monitored by visual inspection daily.
EQT 0031 67 – Unit 4 Flare	40 CFR 63.11(b)(5) 40 CFR 63.987(c).	Monitoring of the flare pilot flame's presence using a thermocouple or equivalent device continuously.
EQT 0033 7-96 – Unit 3 Flare	40 CFR 63.11(b)(5) 40 CFR 63.987(c).	Monitoring of the flare pilot flame's presence using a thermocouple or equivalent device continuously.
EQT 0037 72 – Center Whse. Vacuum Sys. Bag Filter	40 CFR 64.6(c)(1)	Opacity (surrogate for Particulate matter (10 microns or less)) monitored by visual inspection daily.
EQT 0040 95- South Warehouse Vacuum System	40 CFR 64.6(c)(1)	Opacity (surrogate for Particulate matter (10 microns or less)) monitored by visual inspection daily.
GRP 0001 CAP – Facility-wide Process Emissions CAP	LAC 33:III.509	SO_2 emissions monitored by calculation
CRG 0001 Filters including: **EQT 0006, EQT0009, EQT0012, EQT0013, EQT0015, EQT0016, EQT0017, EQT0030, EQT0032, EQT0034, EQT0035, EQT0036, EQT0037, EQT0046**	LAC:III.501.C.6	Semiannual equipment monitoring by technically sound method or when visual inspections indicate that maintenance is necessary.

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Unit	Applicable Regulation (s)	Monitoring Requirement
UNF 0001 Facility Wide – Ville Platte Plant	LAC 33:III.507.H.1.a	Carbon black oil feed rate monitored continuously by technically sound method.
		Sulfur content of the carbon black oil feed blend monitored monthly by technically sound method. Carbon black oil feed blend shall be analyzed for sulfur content.
		Carbon black production rate monitored continuously by technically sound method.
		SO_2 monitored monthly by material balance.

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VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

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Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.